CLAIMS

1. (Previously Amended) An electrochemical test strip comprising:

(a) a reaction zone defined by opposing working and reference electrodes separated by a spacer layer, wherein at least one of said working and reference electrodes has a surface modified with a homogenous surface modification layer made up of self assembling molecules having a first sulfhydryl end group and a second sulfonate end group, wherein said sulfhydryl and sulfonate end groups are separated by a lower alkyl linker group; and

(b) a redox reagent system present in said reaction zone, wherein said redox reagent system comprises at least one enzyme and a mediator.

2. (Original) The electrochemical test strip according to Claim 1, wherein at least one of said electrodes comprises a metal selected from the group consisting of: gold, palladium, silver, iridium, carbon, doped indium tin oxide and stainless steel.

3. (Original) The electrochemical test strip according to Claim 2, wherein said electrode comprises gold or palladium.

4. (Original) The electrochemical test strip according to Claim 1, wherein said self-assembling molecules have the formula:

$$HS\text{-}(CH_2)_n\text{-}SO_3Y$$

wherein:

n is an integer from 1 to 6; and

Y is H or a cation.

5. The electrochemical test strip according to Claim 1, wherein said at least one enzyme includes an oxidizing enzyme.

6. (Previously Amended) An electrochemical test strip comprising:

(a) a reaction zone defined by opposing working and reference electrodes comprising a metal surface separated by a thin spacer layer, wherein at least one of said working and reference electrodes has a surface modified with a homogenous surface modification layer made up of self assembling molecules of the formula:

$$HS\text{-}(CH_2)_n\text{-}SO_3Y$$

wherein:

n is an integer from 1 to 6; and

Y is H or a cation; and

(b) a redox reagent system present in said reaction zone, wherein said redox reagent system comprises enzymes and a mediator.

7. (Original) The electrochemical test strip according to Claim 6, wherein said reaction zone has a volume ranging from about 0.1 to 10 μl.

8. (Original) The elctrochemical test strip according to Claim 6, wherein said metal is selected from the group consisting of gold and palladium.

9. (Original) The electrochemical test strip according to Claim 6, wherein said enzymes include an oxidizing enzyme.

10. (Original) The electrochemical test strip according to Claim 9, wherein said oxidizing enzyme in a glucose oxidizing enzyme.

11. (Original) The electrochemical test strip according to Claim 6, wherein said self assembling molecule is 2-mercaptoethane sulfonic acid or a salt thereof.

12. (Previously Amended) An electrochemical test strip for use in detecting the concentration of glucose in a physiological sample, said test strip comprising:

(a) a reaction zone defined by opposing working and reference electrodes comprising a metal surface selected from the group consisting of gold and palladium separated by a thin spacer layer, wherein at least one of said working and reference electrodes has a surface modified with a homogenous surface modification layer made up of 2-mercaptoethane sulfonic acid or a salt thereof; and

(b) a redox reagent system present in said reaction zone, wherein said redox reagent system comprises a glucose oxidizing enzyme and a mediator.

13. (Original) The electrochemical test strip according to Claim 12, wherein said reaction zone has a volume ranging from about 0.1 to 10 μl.

14. (Original) The electrochemical test strip according to Claim 12, wherein said reference electrode is a gold electrode.

15. (Original) The electrochemical test strip according to Claim 12, wherein said working electrode is a palladium electrode.

16. (Previously Amended) A method of determining the concentration of an analyte in a physiological sample, said method comprising:

(a) applying said physiological sample to an electrochemical test strip comprising:

(i) a reaction zone defined by opposing working and reference metallic electrodes separated by a spacer layer, wherein at least one of said metallic working and reference electrodes has a surface modified with a homogenous surface modification layer made up of

self assembling molecules having a first sulfhydryl end group and a second sulfonate end group, wherein said sulfhydryl and sulfonate end groups are separated by a lower alkyl linker group; and

(ii) a redox reagent system present in said reaction zone, wherein said redox reagent system comprises at least one enzyme and a mediator;

(b) detecting an electrical signal in said reaction zone using said metallic electrodes; and

(c) measuring said detected electrical signal to thereby determine the concentration of said analyte in said sample.

17. (Original) The method according to Claim 16, wherein said self-assembling molecules have the formula:

$$HS\text{-}(CH_2)_n\text{-}SO_3Y$$

wherein:

n is an integer from 1 to 6; and

Y is H or a cation.

18. (Original) The method according to Claim 17, wherein said self-assembling molecules are 2-mercaptoethane sulfonic acid or a salt thereof.

19. (Original) The method according to Claim 16, wherein said analyte is glucose.

20. (Original) The method according to Claim 19, wherein said redox reagent system comprises a glucose oxidizing enzyme.

Claims 21 to 25 (Withdrawn)

26. (Previously Amended) The electrochemical test strip according to claim 1, wherein said strip is present in an automated instrument designed to work with test strips.

27. (Previously Amended) The method according to claim 16, wherein said detecting and measuring steps are performed by an automated instrument designed to work with test strips.